

In the Claims:

Please cancel claims 19, 20, 23, 25, 33, 37, 45 and 70-74 and replace claims 16, 22, 24, 26-28, 38 and 52. All pending claims are reproduced below, including those that remain unchanged.

1. (Original) An artificial replacement disk that is positionable between vertebrae comprising:
an upper housing including an upper cavity;
a lower housing including a lower cavity;
a first spacer and a second spacer, said first and second spacers mounted on a shaft with a resisting member located between the first and the second spacers, which resisting member can urge said first and second spacers apart; and
said first and second spacers partially located in said upper cavity and partially located in said lower cavity.
2. (Original) The disk of claim 1 wherein at least one of said upper cavity and said lower cavity includes a ramp and at least one of said first spacer and said second spacer can slide relative to said ramp.
3. (Original) The disk of claim 1 wherein at least one of said upper cavity and said lower cavity includes a ramp and at least one of said first spacer and said second spacer can slide relative to said ramp in order to allow said first housing to move relative to said second housing.
4. (Original) The disk of claim 1 wherein at least one of said upper cavity and said lower cavity includes a ramp and at least said first spacer and said second spacer includes a ramp with can mate with the ramp of the at least one of said upper cavity and said lower cavity.
5. (Original) The disk of claim 1 wherein when the upper housing and the lower housing are urged together, said first spacer and said second spacer move relative to each other.
6. (Original) The disk of claim 1 wherein when the upper housing and the lower housing are urged together, one of the first spacer and the second spacer moves toward the other of the first spacer and the second spacer.
7. (Original) The disk of claim 1 wherein when the upper housing and the lower housing are urged

together, the first spacer and the second spacer moves toward each other.

8. (Original) The disk of claim 1 including a retainer that maintains no more than a maximum distance between the upper housing and the lower housing.

9. (Original) The disk of claim 1 wherein at least one of the upper cavity and the lower cavity is concave in shape.

10. (Original) The disk of claim 1 wherein at least one of the upper cavity and the lower cavity has a first sloping end, a central cylindrical portion, and a second sloping end.

11. (Original) The disk of claim 1 wherein at least one of the upper cavity and the lower cavity is kidney shaped.

12. (Original) The disk of claim 1 wherein at least one of the upper cavity and the lower cavity is substantially elliptically shaped.

13. (Original) The disk of claim 1 wherein at least one of the first spacer and the second spacer includes a ramp.

14. (Original) The disk of claim 1 wherein at least one of the first spacer and the second spacer is oval-shaped.

15. (Original) The disk of claim 1 wherein at least one of the first spacer and the second spacer is bell-shaped.

16. (Currently Amended) An artificial replacement disk that is positionable between vertebrae comprising:

a first housing including a first cavity;

a second housing including a second cavity;

a first spacer and a second spacer, said first and second spacers mounted on a shaft with a resisting member located between the first and the second spacers, which resisting member can urge said first and second spacers apart; and

said first and second spacers partially located in said first cavity and partially located in said second cavity; and

when the first housing is urged toward the second housing, the first and the second spacers move relative to each other and against the resisting member.

17. (Original) The disk of claim 16 wherein said first and said second housings have first and second elongated sides respectively, and wherein at least one of the first and second spacers can move along a direction of the first and second elongated sides, such that when the first and second housing are urged together at an angle that is non-parallel to at least one of the first and second elongated sides, the at least one of the first and second spacers move along the direction of the first and the second elongated sides.

18. (Original) The disk of claim 16 wherein at least one of the first cavity and the second cavity has a first sloping end, a central cylindrical portion, and a second sloping end.

19. (Canceled)

20. (Canceled)

21. (Original) An artificial replacement disk that is positionable between vertebrae comprising:

a first housing including a cavity;

a second housing;

a first spacer and a second spacer, said first and second spacers mounted on a shaft with a resisting member located between the first and the second spacers, which resisting member can urge said first and second spacers apart;

said first and second spacers at least partially located in said cavity;

wherein the cavity has a sloping portion, and a cylindrical portion; and

when the first housing is urged toward the second housing the first and the second spacers move relative to each other and against the resisting member with one of the first and second spacers moving along the sloping portion of the cavity and toward the cylindrical portion.

22. (Currently Amended) An artificial spinal disk adapted to be positioned between adjacent vertebrae of a spine, comprising:

an upper plate;

a lower plate positioned opposite the upper plate such that a gap having a maximum width exists between the lower plate and the upper plate;

a device arranged between the upper plate and the lower plate for urging that can urge the upper and lower plates apart, the device including:

a shaft,

a first spacer slidably associated with the shaft,

a second spacer associated with the shaft, and

a resisting mechanism disposed between the first spacer and the second spacer such that the first spacer and the second spacer are urged apart; and

wherein when the upper plate and the lower plate are urged together and the resisting mechanism is overcome, the first spacer and the second spacer are urged together such that at least a portion of the gap collapses between a portion of each of the upper plate and the lower plate narrows, such that the gap between a remaining portion of each of the upper plate and the lower plate is no wider than the maximum width.

23. (Canceled)

24. (Currently Amended) The artificial spinal disk of claim 22, ~~further comprising:~~

~~a first spacer positioned between an first portion of the upper plate and an first portion of the lower plate;~~

~~a second spacer positioned between a second portion of the upper plate and a second portion of the lower plate; and~~

wherein when the upper plate and lower plate are ~~engaged~~ urged together, one or both of the first spacer and the second spacer slide toward ~~each the other of the first spacer and the second spacer.~~

25. (Canceled)

26. (Currently Amended) The artificial spinal disk of claim ~~25~~ 22, ~~further comprising: wherein the resisting mechanism is a spring associated with the shaft for applying the load.~~

27. (Currently Amended) The artificial spinal disk of claim 24, wherein a cavity of at least one of the upper plate and the lower plate within which the device is at least partially disposed includes a ramp.

28. (Currently Amended) The artificial spinal disk of claim 24, wherein a cavity of at least one of the upper plate and the lower plate within which the device is at least partially disposed is kidney shaped.

29. (Original) The artificial spinal disk of claim 27, wherein the first spacer has a substantially ovoid-shaped cross-section such that the first spacer substantially conform to the ramp of at least one of the upper plate and the lower plate.

30. (Original) The artificial spinal disk of claim 27, wherein the first spacer has a substantially bell-shaped cross-section such that the first spacer substantially conforms to the ramp of at least one of the upper plate and the lower plate.

31. (Original) The artificial spinal disk of claim 28, wherein the first spacer has a substantially oval-shaped cross-section such that the first spacer substantially conforms to at least one of the upper plate and the lower plate.

32. (Original) The artificial spinal disk of claim 28, wherein the first spacer has a substantially bell shaped cross-section such that the first spacer substantially conform to at least on of the upper plate and the lower plate.

33. (Canceled)

34. (Original) The artificial spinal disk of claim 22, wherein the upper plate and lower plate each comprise one of titanium, stainless steel, or PEEK.

35. (Original) The artificial spinal disk of claim 24, wherein the first spacer and the second spacer each comprise one of titanium, stainless steel, or PEEK.

36. (Original) The artificial spinal disk of claim 22, further comprising:

a plurality of ridges on at least one of the upper plate and lower plate adapted to grip an associated vertebra.

37. (Canceled)

38. (Currently Amended) A artificial spinal disk for substituting at least a portion of a spinal disk between adjacent vertebrae, comprising:

an upper housing adapted to be positioned adjacent to a first vertebra;

a lower housing positioned opposite the upper housing, the lower housing adapted to be positioned adjacent to a second vertebra;

an first spacer positioned between the upper housing and the lower housing ~~such that an first gap can exist between an first end of the upper housing and an first end of the lower housing;~~

a second spacer positioned between the upper housing and the lower housing ~~such that a second gap can exist between a second end of the upper housing and a second end of the lower housing;~~

wherein the first spacer and the second spacer urge a gap between the upper housing and the lower housing;

a shaft;

the first spacer and the second spacer mounted on the shaft, one or both of the first spacer and the second spacer being movable along the shaft;

a ~~device~~ resisting mechanism that can urge adapted to urge the first and second spacer apart; and

wherein when a force is applied to the upper housing and the lower housing such that the resisting mechanism is overcome, the gap is reduced ~~are urged together, the space between the first spacer and the second spacer can be reduced.~~

39. (Original) The artificial spinal disk of claim 38, wherein the shaft includes a spring for applying the load.

40. (Original) The artificial spinal disk of claim 38, wherein a cavity of at least one of the upper housing and the lower housing has a ramp.

41. (Original) The artificial spinal disk of claim 38, wherein a cavity of at least one of the upper housing and the lower housing is kidney-shaped.

42. (Original) The artificial spinal disk of claim 40, wherein the first spacer has a substantially oval-shaped cross-section such that the first spacer substantially conforms to the ramp at least one of the upper housing and the lower housing.

43. (Original) The artificial spinal disk of claim 40, wherein the first spacer has a substantially bell-

shaped cross-section such that the first spacer substantially conforms to the ramp of at least one of the upper housing and the lower housing.

44. (Original) The artificial spinal disk of claim 38, wherein when the upper housing and the lower housing are urged together, the first spacer slides along the upper housing and the lower housing and in a cavity to reduce the space between the first spacer and the second spacer.

45. (Canceled)

46. (Original) The artificial spinal disk of claim 38, wherein the upper housing and lower housing each comprise one of titanium, stainless steel, or PEEK.

47. (Original) The artificial spinal disk of claim 38, wherein the first spacer and the second spacer each comprise one of titanium, stainless steel, or PEEK.

48. (Original) The artificial spinal disk of claim 38, further comprising:
a ridge on at least one of the upper housing and lower housing for gripping an associated vertebra.

49. (Original) The disk of claim 22 wherein:
the first and second spacers have shapes of revolution.

50. (Original) The disk of claim 22 wherein:
said first and second spacers have first and second spacer ramps respectively.

51. (Original) The disk of claim 22 wherein:
said first and second spacers each have housing contact surfaces that are wider than the spacers are tall.

52. (Currently Amended) The disk of claim 22 wherein:
said first and second spacers are ~~conically-shaped~~ conically-shaped with rounded edges.

53. (Original) An artificial spinal disk that is adapted to be placed between adjacent vertebral bodies of a spine, comprising:

an upper elongated housing;
a lower elongated housing;
a first spacer and a second spacer positioned relative to an elongated shaft between the first and second housings with the elongated shaft being about parallel to the upper and lower elongated housings;
a spring mechanism positioned along said shaft in order to urge said first and second spacers apart;
and
wherein when the upper and lower housings are urged together at least one of the first and second spacers can move relative to the other against the spring mechanism

54. (Original) The disk of claim 53 wherein:
the first and second spacers have shapes of revolution.

55. (Original) The disk of claim 53 wherein:
said first and second spacers have first and second spacer ramps respectively.

56. (Original) The disk of claim 1 wherein at least one of the housings includes a keel adapted to be positioned in a vertebral body of a vertebra.

57. (Original) The disk of claim 1 wherein at least one of the housings includes a keel that is positioned on said at least one housing so that with the disk implanted in a spine the keel is oriented laterally with respect to the spine.

58. (Original) The disk of claim 1 wherein at least one of the housings includes a keel that is positioned on said at least one housing so that with the disk implanted in a spine the keel is substantially perpendicular to a sagittal plane of the spine.

59. (Original) The disk of claim 1 wherein said upper and lower housings with no force on the disk are spaced apart a maximum amount and force on any portion of the disk does not space the housings apart beyond said maximum amount.

60. (Original) The disk of claim 1 wherein with the disk implanted in a spine the shaft is adapted to be oriented along a lateral line with respect to the spine.

61. (Original) The disk of claim 1 wherein with the disk implanted in a spine the shaft is adapted to be oriented along an anterior/posterior line.
62. (Original) The disk of claim 16 including at least one of said first and second housings including a keel that is adapted to be positioned in a vertebral body of the spine.
63. (Original) The disk of claim 16 wherein at least one of the housings includes a keel that is positioned on said at least one housing so that with the disk implanted in a spine the keel is oriented laterally with respect to the spine.
64. (Original) The disk of claim 16 wherein at least one of the housings includes a keel that is positioned on said at least one housing so that with the disk implanted in a spine the keel is substantially perpendicular to a sagittal plane of the spine.
65. (Original) The disk of claim 16 wherein said first and second housings with no force on the disk are spaced apart a maximum amount and force on any portion of the disk does not space the housings apart beyond said maximum amount.
66. (Original) The disk of claim 16 wherein with the disk implanted in a spine the shaft is adapted to be oriented along a lateral line with respect to the spine.
67. (Original) The disk of claim 16 wherein with the disk implanted in a spine the shaft is adapted to be oriented along an anterior/posterior line.
68. (Original) The disk of claim 1 including BMP provided thereon.
69. (Original) The disk of claim 16 including BMP provided thereon
- 70.-74. (Canceled)